The Decontamination and Waste Treatment Facility

DWTF

UCRL-TB-121243 October 1995

Fact Sheet

The U.S. Department of Energy (DOE) owns and operates the Lawrence Livermore National Laboratory (LLNL) in Livermore, California. The DOE proposes to replace the existing dispersed waste management facilities at LLNL with a new integrated facility. The new facility will be called the Decontamination and Waste Treatment Facility (DWTF).

Background

In 1985, LLNL began looking for ways to upgrade its facilities for the safe, efficient handling, treatment, and storage of hazardous, radioactive, and mixed wastes (mixed wastes have both hazardous and radioactive components). The initial proposal called for replacing the old waste incinerator with a new hazardous waste incinerator. However, the old waste incinerator has been dismantled and removed, and the proposal for a new incinerator has been dropped.

In mid-1993, LLNL developed twenty-four options, which included building an all-new complex for the handling and management of hazardous, radioactive, and mixed wastes, remodeling and upgrading existing facilities, and employing a combination of new and upgraded facilities. In late 1994, the DOE chose the "all-new" approach based on the proposed DWTF's ability to:

- Provide the capability to treat additional LLNL waste streams that do not have an offsite disposal option.
- Reduce waste transfers and handling by consolidating operations in one centralized facility.
- Replace 40-year-old buildings with new buildings designed to current seismic standards.
- Incorporate the latest in safety systems and design.
- Minimize construction interference with ongoing hazardous waste operations.
- Cost less to operate (saving some $400,000 a year).

The DOE also decided to integrate the Mixed Waste Management Facility (MWMF) project into the DWTF complex, thereby gaining additional savings in construction and operating costs over separate construction. The MWMF will serve as a national, pilot-scale testbed for the development and demonstration of potential alternatives to incineration of low-level mixed waste. The MWMF will initially demonstrate technologies using surrogates (surrogates are nonwaste materials with treatment characteristics similar to typical waste streams).

Description

The DWTF will entail the design and construction of five new buildings (totaling some 110,000 square feet) within a nine-acre area in the northeast corner of the LLNL site (see site plan on reverse side). The proposed buildings will be located in the vicinity of the existing Chemical Waste Storage Building (Building 693). The following are the proposed new buildings:

- B694 Operational Support.
- B695 Liquid Waste Processing.
- B696 Solid Waste Processing
  - Reactive Materials Processing
  - Radioactive Waste Storage.
- B697 Classified Waste Storage.
- B698 Chemical Exchange Warehouse (CHEW).

The DWTF will be designed and constructed in accordance with the Low Chemical Hazard and Category 3 Nuclear Facility design criteria. In addition, the DWTF will be operated under a Resource Conservation and Recovery Act hazardous waste facility permit.

A portion of Building 695 will also provide space for the MWMF. This building will be constructed in several phases. The first phase will provide the space for the MWMF. The second phase will provide the space for Liquid Waste Management processes.

Schedule

The DWTF complex will be built in phases, with start of operations of the estimated $68 million project targeted for the year 2001. The engineering design and permit application phase for the new project scope began in early 1995. Construction is estimated to be completed in late 2000.

For More Information

If you have comments or questions, or would like more information about the DWTF project, please contact:

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Equipment Lists. The lists below show existing process equipment to be relocated and installed into the DWTF (left) and new equipment to be incorporated into the DWTF.

Existing process equipment.

Liquid Waste Processing Building

- One centrifuge unit.
- One carbon adsorption/scrubbing unit (air pollution control only).
- One evaporator unit.
- One portable blending unit.
- One solidification unit.
- One shredder unit.
- One microfiltration unit (for treatability studies only).

Solid Waste Processing Building

- One decontamination booth (walk-in booth from B612).
- One laminar flow hood (moved from B612).
- One drum crusher.

Reactive Materials Building

- One Parr reactor (1000-ml size).
- One multihazard glove box.

New equipment.

Liquid Waste Processing Building

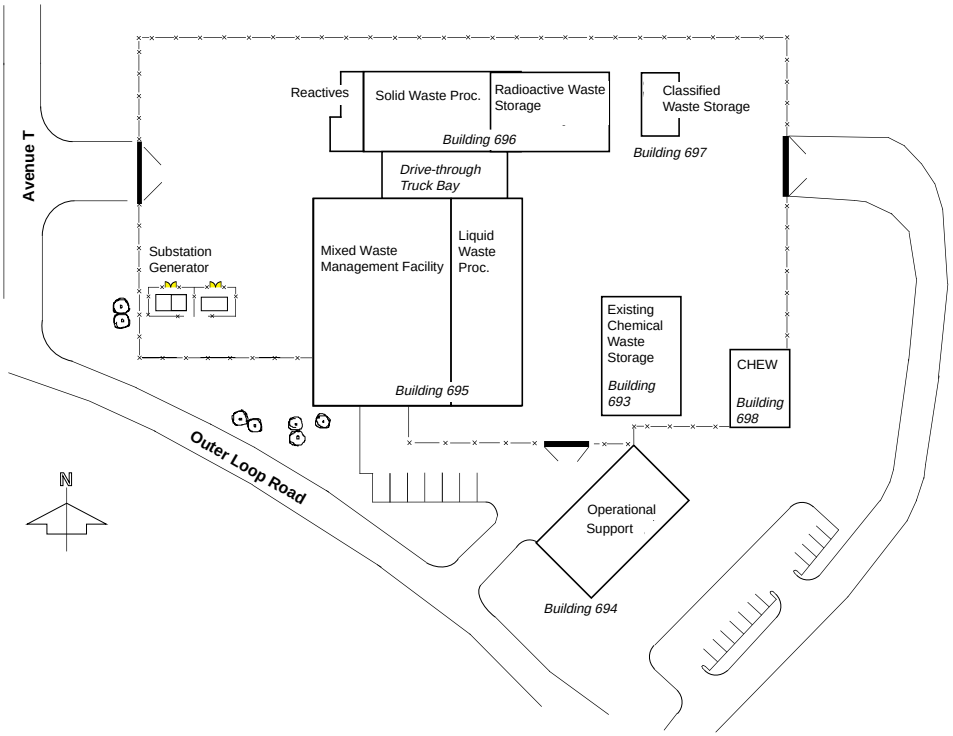
- One filtration unit (skid-mounted small filter housing).
- One screening unit.
- Tools for size reduction (screwdrivers, hacksaws, etc.).
- One desorption unit/wash unit.
- Waste water treatment tank farm (to replace the existing Area 514 tank farm).

Solid Waste Processing Building

- One baler/compactor unit.
- One TRU waste repackaging booth (walk-in booth).
- One drum crusher.

Reactive Materials Building

- One inert atmosphere glove box.
- One retort unit (small bench-scale unit for precious-metal recovery).
- One water reactive unit (to be placed inside one of the small glove boxes).
- One glove box (radioisotope) with HEPA prefilter.
- One perchloric acid fume hood.
- One small-scale bleaching unit, with a walk-in hood.



The DWTF site plan. We plan to design and construct five new buildings covering 110,000 square feet.

This work was performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under contract no. W-7405-Eng-48.